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SDWRI Water News

South Dakota Water Resources Institute

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# SDWRI WATER NEWS

SOUTH DAKOTA WATER RESOURCES INSTITUTE  
SOUTH DAKOTA STATE UNIVERSITY  
COLLEGE OF AGRICULTURE AND BIOLOGICAL SCIENCES

JUNE 2013

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## The 8<sup>th</sup> Annual Eastern South Dakota Water Conference

October 30, 2013 at the University Student Union at SDSU

### Conference stipends covering travel, hotel and registration are available.

Contact the Trista Koropatnicki at [trista.koropatnicki@sdstate.edu](mailto:trista.koropatnicki@sdstate.edu) or 605-688-4910 for more information.

The goal of the ESDWC is to bring stakeholders in water resources, including policy makers, industry, agriculture, officials from federal, state, and local governments, universities, engineers, interest organizations and the citizens of the state together to exchange information, discuss solutions to current and emerging water resources topics, define new policies and network to form professional relationships. In addition, a large number of college-level students from engineering, agronomy and other biological sciences typically attend the conference to engage in water-related discussions of relevance to the state and the region and meet with prospective employers.

## 104WRI Request for Proposals

The U.S. Army Corps of Engineers' (USACE) Institute for Water Resources (IWR) in cooperation with the National Institutes for Water Resources (NIWR) and the South Dakota Water Resources Institute (SDWRI) is requesting proposals for grants to support applied investigations related to water resources issues in the United States.

### Program information

- Award amount: Up to \$200,000
- Project duration: Up to two years
- Match requirements: None
- Submission deadline to the SD WRI: July 30 2013

All proposals from South Dakota researchers must submit their proposal through the SDWRI. The SDWRI will be the official applicant and will subcontract the awards to the proposers. The SDWRI will not charge fees nor apply indirect cost rate to the award. It is expected that Principal Investigators will coordinate the application process with SDWRI Director Van Kelley from the beginning of the process.

Proposals must be emailed as a single PDF file to the SDWRI by July 30, 2013.

Please see <http://www.sdstate.edu/abe/wri/research/104wri.cfm> or contact Trista Koropatnicki at 605-688-4910 for additional questions.



## 2013 Big Sioux Water Festival Celebrates its 21th Year!

The festival is co-sponsored by the South Dakota Water Resources Institute and was held on May 7th at the SDSU Campus. This year there was 1,033 fourth graders and their teachers on campus for the festival that participated in a fun-filled day of hands-on water education activities and experiments. More than 200 volunteers from throughout the SDSU and Brookings communities assisted with the event.



### Mary O'Neill Retires After 42 Years



Mary O'Neill, program manager for the office of remote sensing, has served SDSU and the state of South Dakota for 42 years as a researcher, instructor and project manager.

She specializes in geospatial technologies, remote sensing, geographic information systems and global positioning systems.

During the course of her career, she has retained positive relationships with peers, industry collaborators, international scientists and SDSU undergraduate and graduate students.

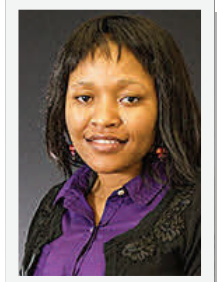
O'Neill has been a fundamental part of university and community activities, including science workshops, Flandreau Indian student workshops, leadership in the Dakota Chapter of the American Society of Photogrammetry and Remote Sensing, Brookings Kiwanis Club and the Faith Reformed Church.

She has also been instrumental in the organization of the Professional Staff Advisory Council, which establishes representation for non-faculty exempt staff members.

## Exploring and Designing Potential Irrigation System for Lesotho

By, Ntsieng Rasoeu, Graduate Assistant

As the world's population continues to grow the demand of food increases. Irrigation is a proven way to increase food production, especially in the times of increased climate variability and droughts. Irrigation plays several important roles in food production, including: replenish soil moisture, enhancing plant growth and frost protection.



Lesotho is located in Southern Africa and has, as a whole, ample water resources. However, at the same time it has a high level of food insecurity because of depressed yields caused by droughts, frost and hail, and other problems related to land degradation. Lesotho is therefore forced to seek food aid from the international community in order to feed its population. The implementation of irrigation in this country can be a solution to supplement insufficient rainfall.

### The Potential of Irrigation in Lesotho and the Complexity

There has been irrigation in Lesotho since the 1940s that was established by the British but later fell into disrepair due to poor management, and lack of maintenance. Currently, irrigation is not efficiently utilized in Lesotho. The country is however working on implementing irrigation projects. Its topography, water distribution and climate variability, and lack of expertise remain to be a challenge in implementation of irrigation. The seasonal distribution of precipitation varies considerably, resulting in rainfall falling outside of the growing season, at high intensity, or not falling at all when it is needed. Some challenging weather conditions occur periodically such as: drought, heavy frosts, hail and heavy unseasonal rains. Not only is the geographical distribution of precipitation challenging but also the fact that the storage capacity is limited and located where it is not easily accessible for agriculture. These factors makes it necessary to pump water from the streams, rivers or dams to the fields uphill making it necessary to build conveyance infrastructures.



Maletsunyane River

The purpose of this research is to explore, assess and design effective, low cost, and environmentally friendly irrigation system that can work in Lesotho. The irrigation systems design and implementation is dependent on a number of factors such as topography, water sources, soil type, climate, crops to be irrigated and the cost of the system.

### Methodology

This research will assess and design an irrigation system suitable for a specific region in Lesotho based on the topography, water sources, soil type, crops to be irrigated, climate, and the cost. First, weather data will be collected from weather stations located within Lesotho and from the nearby weather stations in South Africa. Then weather data quality control will be performed to make sure the data is a good. This data will be used to compute evapotranspiration (ET) which will help determine how much water is needed for irrigation and identify area suitable for irrigation.



Lesotho

### Boris Shmagin Attends International Scientific Conference Moscow State University

The Faculty of Geology at the Lomonosov Moscow State University (Moscow, Russian Federation) held the International Scientific Conference "HYDROGEOLOGY TODAY AND TOMORROW: SCIENCE, EDUCATION AND PRACTICE" on May 22-24, 2013. The conference was dedicated to the 60<sup>th</sup> anniversary of the establishment of the Department of Hydrogeology at the University.

Adjunct Professor Boris Shmagin, from SD WRI (a 1970 MS graduate of the Department), took a part in the conference and sent a poster with his results from a study detailing the regional hydrology of Missouri River's flood in 2011. The results were part of the research from the SD EPSCOR Planning Grant: "Development of Conceptual and Mathematical Models to Understand and Describe the Uncertainty of Hydrological Events in the Changing Conditions of the State of South Dakota", which was completed in 2012.



Pictured above, from left to right, are Prof. Vladimir Alekseevich Vsevolozhsky (the Department Head in 1988-2009) and Prof. Sergey Pavlovich Pozdniakov (the current Dept Head).

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*Water News* features water-related topics, including SDWRI activities.

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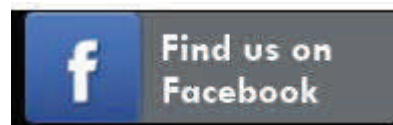
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